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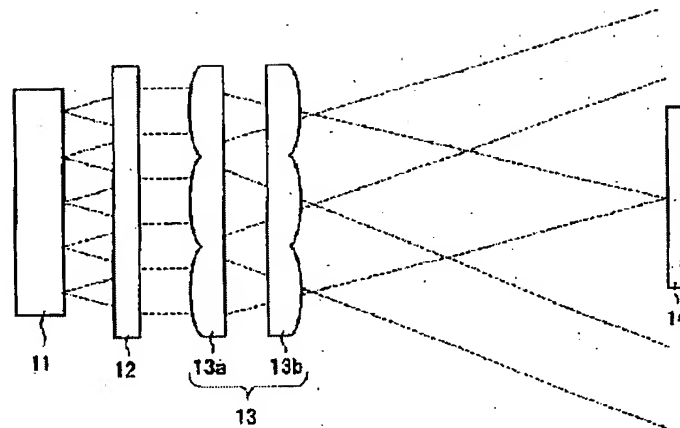
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TITLE : LASER ILLUMINATION OPTICAL
SYSTEM AND EXPOSURE DEVICE,
LASER PROCESSING MACHINE AND
PROJECTION DEVICE USING THE
OPTICAL SYSTEM



ABSTRACT : PROBLEM TO BE SOLVED: To decrease interference fringes caused by the beams from a laser array light source in the direction perpendicular to the array and to improve uniform illumination performance on the objective part for illumination.

SOLUTION: A hologram element 12 converts the intensity distribution of the component of light perpendicular to the array direction in the beams emitting from the laser array light source 11. That is, by preliminarily designing the diffraction angles of the hologram element 12, the Gaussian profile of the laser light is controlled to obtain constant illumination distribution on the objective part 14 for illumination. The beam component perpendicular to the array direction is made uniform on the objective part 14 for illumination by a fly-eye lens system 13 as shown in the figure. Uniform illumination on the objective part 14 can be obtained by the hologram element 12 and the fly-eye lens 13.

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